Spring 2-1-2017

BIOB 170N.01: Principles of Biological Diversity

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BIOB 170 Principles of Biological Diversity

Course Syllabus and Lecture Outline

Spring 2017

Professor: Dr. Kevin Murray
Office: NS 113; office hours 1:00 - 2:00 pm Tues/Thurs
Contact information: phone 4495; email: kevin.murray@umontana.edu
Class meeting times: MWF, 1-2 pm; ULH

Required text:

Biology: Campbell et al. Biology. 10th ed.

Course scope and objectives.

The diversity in form and function encountered among living organisms is astounding. From a single cell, to a simple organism such as a jellyfish, to plants and ecological communities, living things exhibit a staggering hierarchy of complex organization. Nothing found in the abiotic world (non-living systems such water, rocks, stars and yes, even computers and other man-made machines) comes close to the complexity of even a single cell.

Biological diversity manifests on many levels. For instance, we may refer to the diversity in form and function of mammal fore-limbs, or the variety of organelles found in a eukaryotic cell, the number of species in an ecosystem or even the number of different ecosystems that make-up a biome. From a temporal perspective we should also note the diverse parade of living innovations represented in the evolutionary history of life on earth.

In BIOB 170 we cannot address all of the many levels of biological diversity on earth. Our focus will be instead on the major categories of living things, ranging from unicellular bacteria, to protists, plants, fungi and animals. We will strive to attain a complete picture of the mosaic of life on earth, and, importantly, how the pieces of this mosaic (major taxonomic groups) are related to one another. For instance, consider a small pond. Within even a relatively limited ecosystem such as a freshwater pond we could likely find representatives of all major forms of life earth: bacteria, protists, plants, fungi and animals, each represented in probably numerous forms (species). BIOB 170 will provide you with principles needed to understand many things about life in that pond as well as throughout the biosphere: What is a protist? How do protists differ from each other and from other organisms such as plants and animals? What makes an "animal" an animal? Are all green, photosynthetic organisms plants? And many more questions about life on earth.

Grading.

There will be 3 regular session exams and a final exam. Exams are objective (true/false, multiple choice). Each regular session exam will be worth approximately 65 points. Your grade will be calculated as a percentage of total possible exam points. You will require SCANTRONS for lecture exams. Fundamentally, the following grading scheme will be used:

100 – 90% = A; 89.9 – 80% = B; 79.9 – 70% = C; 69.9 – 55% = D; < 55% = F

Classroom attendance, make-up exams, extra-credit.

Your participation in classroom discussions may affect your final grade; please attend class on a regular basis. Disruptive behavior such as talking or leaving lecture early is not acceptable. If you expect to leave class early, please tell Professor before class begins. Make-up exams will be permitted only with compelling and supported reasons. Make-up exams will take place one week after the scheduled exam, immediately after class (2:00 – 3:00 pm). Extra-credit assignments may be arranged only under exceptional circumstances; please contact Professor Murray for more information.

Lecture Notes.

Undoubtedly, the art of taking clear, concise lectures notes will be one of your most valuable skills as a University student and beyond. Therefore, come prepared to class with a dedicated notebook. Date your entries and strive to keep complete, organized lecture notes. Also, a proven method of learning is the re-writing of lecture notes. This will greatly assist your comprehension of the material.

BIOB 170 Lecture Topic Schedule Spring 2017

Date	Topic	Text reference pages
23 Jan	Course introduction	
25 Jan	Phylogenetics & systematics	546 – 550
27 Jan	Phylogenetics & systematics	
30 Jan	Prokaryotes: introduction	567 – 571
01 Feb	Prokaryotes: metabolism & diversity	575 – 580
03 Feb	Prokaryotes: ecological relationships	581 – 584
06 Feb	Prokatyotes: ecological relationships	
08 Feb	Prokayotes cont	587 – 592
10 Feb	Protists: origins & intro	
13 Feb	**Exam I**	
15 Feb	Protist diversity 1	590 – 592
17 Feb	Protist diversity 2	593 – 595
20 Feb	**no class**	
22 Feb	Protist diversity 3	601 – 605
24 Feb	Protist diversity 4	606 – 610
27 Feb	Protist diversity 5	606 – 610
01 Mar	Protist cont.	606 – 610
03 Mar	Plant intro	613 - 615
06 Mar	Plant intro	613 - 615
08 Mar	**Exam II**	
10 Mar	Plants: seedless vascular	622 – 627
13 Mar	Plants: seedless vascular	
15 Mar	Plants: intro seed bearing	630 – 632
17 Mar	Plants: gymnosperms	633 – 636
20 Mar	**Spring Break**	
22 Mar	**Spring Break**	
24 Mar	**Spring Break**	

27 Mar	Plants: gymnosperms	
29 Mar	Plants: angiosperms	638 – 640
31 Mar	Plants: angiosperms	640 – 646
03 Apr	Fungi	648 – 650
05 Apr	Fungi	650 – 655
07 Apr	**Exam III**	
10 Apr	Animals: intro/classification	667 – 669
12 Apr	Animals: intro/classification	670 – 675
14 Apr	Animals: intro/classification	675 – 677
17 Apr	Animal diversity 1	680 – 685
19 Apr	Animal diversity 2	686 – 687
21 Apr	Animal diversity 3	688 – 692
24 Apr	Animal diversity 4	693 – 696
26 Apr	Animal diversity 5	697 – 698
28 Apr	Animal diversity 6	699 – 702
01 May	Animal diversity 7	702 – 704
03 May	Animal diversity 8	705 – 707
05 May	Animal diversity 9	707 – 710
11 May	**Final exam (3:20 – 5:20 pm)**	